MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2015/2016

BDS3014 – DECISION SUPPORT SYSTEMS FOR KNOWLEDGE MANAGEMENT
(All Sections / Groups)

29 FEBRUARY 2016
2.30 p.m – 4.30 p.m
(2 Hours)

INSTRUCTIONS TO STUDENT

1. This Question paper consists of 5 pages with 2 parts only.

2. Attempt **ALL** questions in **Part A** and attempt **TWO** out of **THREE** questions in **Part B**. The distribution of the marks for each question is given.

3. Please write all your answers in the Answer Booklet provided.

PART A: CASE STUDY QUESTION

Read the following case study and answer <u>ALL</u> questions below it. The distribution of marks for each question is given.

Case: Automated and Real-time Decision Systems.

A technology called automated decision systems (ADS) is taking off, and it embodies the best attributes of artificial intelligence and business analytics. ADS are based on business rules, somewhat similar to expert systems (ES), and, like other DSS technologies, they often involve statistical or algorithmic analysis of data. The main differences between the rules in ADS and the rules in ES are in the way they are created and used. The rules in ES are determined based on the experiences of domain experts and are executed collectively by an inference engine. In contrast, the rules in ADS are often created from historical data using advanced business analytics techniques and are used individually to trigger an automatic decision for a routine business situation. ADS typically make decisions real-time after weighing all the data and relevant business rules for a particular case (ES can also be used to make real-time decisions, but often through a consultation session with the end user). Sometimes ADS incorporate business process management information, leading some observers to classify them as "smart business process management" systems.

The most significant characteristic of these systems is that they actually make a decision, such as what price to charge a particular customer, whether to grant a loan or an insurance policy, which delivery truck to reroute, or what drug to prescribe to a diabetic patient. In many cases, their decisions are made without any human intervention at all; in others—sometimes for legal or ethical reasons—they work alongside a human expert, such as a doctor. For the most part, these systems are used for decisions that must be made frequently and very rapidly, using information available online. The decision domains are relatively highly structured, with well-understood decision factors.

"Real time" can be looked at from both business and technology perspectives. From the business perspective, "real time" signifies that the users require rapid responses to customer requests. From the technology perspective, "real time" means that the system needs to have enough power to respond quickly to a user request.

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Real-time ES are widely used for environmental protection and chemical processes. For example, RTXPS is a real-time ES designed for online dynamic decision support, mission-critical command, and control and communication tasks such as (1) emergency management for technological and environmental hazards, including early warning for events such as floods, toxic or oil spills, tsunamis, landslides, and so on; and (2) complex control and assessment tasks, including coordination of first response, recovery, restoration, and clean-up operations.

(Sources: Adapted from: C. White, Intelligent Business Strategies: Near Real-time and Automated Decision Making, *DM Review Magazine*, October 2002; and T. Davenport, Decision Evolution, *CIO Magazine*, October 2004)

a) From the case study, describe the differences between rules in automated decision systems (ADS) and rules in expert systems (ES). (10 marks)

b) Based on the case study, explain the characteristics of both ADS and ES. (8 marks)

c) Discuss **SIX (6)** limitations of ES which is not mentioned in the case study. (12 marks)

d) Given the current status of the Web, outline **FIVE (5)** ways which is not mentioned in the case study, how the Web is changing the availability of ES. (10 marks)

(Total: 40 marks)

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PART B: STRUCTURED QUESTIONS

Answer **TWO** out of THREE questions. Each question carries 30 marks.

QUESTION 1

a) Compare and contrast Decision Support Systems (DSS) and Business Intelligence Systems (BIS).   (10 marks)

b) Discuss **FIVE (5)** reasons why decision making is so complex in today's business environment.   (10 marks)

c) Based on the below Excel worksheet, read and answer the following questions.

	A	B	C	D	E
1	**ITEM CODE**	**ITEM NAME**	**BRAND**	**STOCK IN HAND**	**MINIMUM STOCK LEVEL**
2	TEL100	TELEVISION	SAMSUNG	40	30
3	TURB222	TURBOSTEAM IRON	SHARP	90	70
4	SEW567	SEWING MACHINE	SINGER	32	40
5	HAI945	HAIR DRYER	PANASONIC	160	90
6	COF632	COFFEE MACHINE	KHIND	60	80
7					
8					
9	ITEM CODE	COF632			
10	ITEM NAME				
11	BRAND				
12	REORDER ?				

i) Write a formula to calculate the TOTAL for STOCK IN HAND.   (2 marks)

ii) Write a formula to calculate the AVERAGE for MINIMUM STOCK LEVEL.
                                                                      (2 marks)

iii) Use the LOOKUP function to display the ITEM NAME in cell B10 with exact match based on the Item Code entered in cell B9. Write out the formula.   (2 marks)

iv) Use the LOOKUP function to display the BRAND in cell B11 with exact match based on the Item Code entered in cell B9. Write out the formula.   (2 marks)

Continued...

v) Create a function to achieve the following criteria:

If the Minimum Stock Level is more than the Stock in Hand then display "Yes" in cell B12 otherwise display "No".

(2 marks)

(Total: 30 marks)

QUESTION 2

a) Discuss **FIVE (5)** success factors associated with knowledge management. (10 marks)

b) Discuss **THREE (3)** reasons why user-developed management support systems (MSS) can be of poor quality. What can be done to improve the situation?   (10 marks)

c) Mr Anand, the owner of an electrical shop, wants to see how different scenarios impact the business's Total Income. You used Microsoft Excel to generate a scenario summary report on the different scenarios as shown below. Now, you are required to analyze and interpret the report to Mr Anand. Do **NOT** just state or extract the values from the report but indicate the difference between the current values and each scenario. Lastly, suggest to him the best scenario to adopt in order to enhance the business performance.

(10 marks)

Scenario Summary			
	Current Values:	**Scenario1**	**Scenario2**
Changing Cells:			
Marketing Rate:	15.00%	12.50%	16.00%
Result Cells:			
Total Advertising:	RM 4,525,132.35	RM 3,770,943.63	RM 4,826,807.84
Total Income:	RM 2,567,592.65	RM 3,321,781.37	RM 2,265,917.16

(Total: 30 marks)

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QUESTION 3

a) Identify the **THREE (3)** Group Support Systems (GSS) enabling technologies and for each, give **ONE (1) advantage** and **ONE (1) disadvantage**.   (9 marks)

b) The Fairway Insurance is considering whether to open an investigation of a reported case of negligence at a sliming center. The company is using an expert system that has 500 rules which is developed by PowerBest Software House.

   Should the client involved in the negligence case be informed that a computer program is deciding the future of an investigation?
   Analyze **FIVE (5)** potential legal implications that the company might face.
                                                                   (11 marks)

c) Identify **FIVE (5)** main reasons for the recent popularity of data mining.
                                                                   (10 marks)

                                                          (Total: 30 marks)

End of Paper